http://www.ecy.wa.gov/puget_sound/index.html

The time to act is now

Puget Sound is in trouble. In many areas, its seemingly clear, pristine waters actually contain a soup of noxious and poisonous chemicals. Every time it rains, thousands of pounds of toxic pollutants flow overland, eventually winding up in the Sound. Hundreds of toxic cleanup sites ring its 2,500 miles of shoreline. Critical habitat has been lost to development. Even in its deepest spots the Department of Ecology finds contaminants, some banned for use 30 years ago, in its underwater sediments.

However, by working together we can help reverse what seems a downward spiral. We all want to leave our children and our grandchildren a Puget Sound that's clean and safe and alive. Ecology is committed to do all we can to help Puget Sound be a healthy ecosystem by 2020.

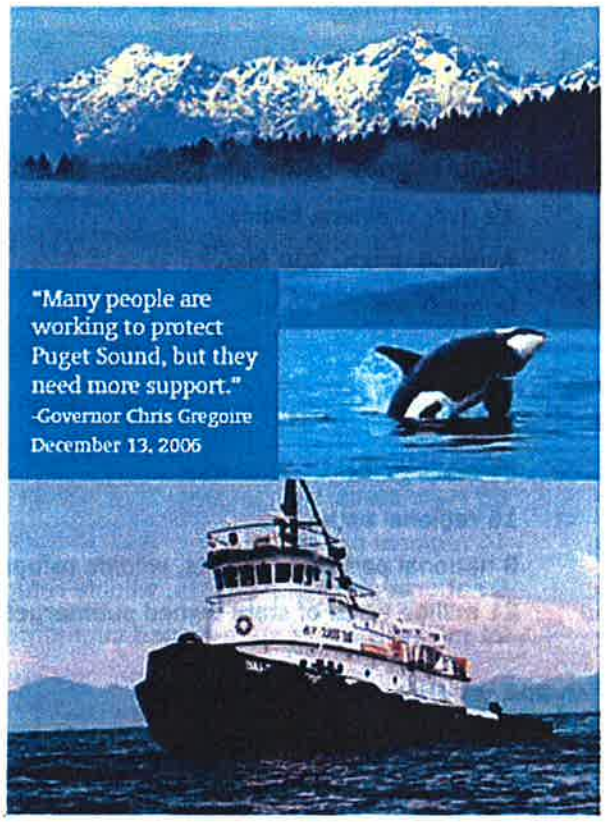
What we're doing about it

Ecology is bringing to bear our best science and research resources to understand the challenges facing Puget Sound and help find solutions. We have a duty to restore, protect and preserve the Sound using the regulations, permitting requirements, and mandates set by the Washington Legislature and Governor Chris Gregoire. We have an obligation to help our citizens, our neighbors, our businesses and industries, and our families understand what's at stake – and what everyone can do to help save this national treasure.

In December 2005, Governor Gregoire and the Legislature launched the Puget Sound Initiative, a comprehensive effort by local, state, federal and tribal governments, business, agriculture and environmental communities, scientists, and the public to restore, protect and preserve Sound by

Saving the Sound

Puget Sound is the second largest estuary in the United States. Only Chesapeake Bay is larger. The Puget Sound estuary is an arm of the Pacific Ocean that extends inland where it meets 19 different river basins. The Sound experiences tidal flows and there is a changing mixture of fresh and salt waters.



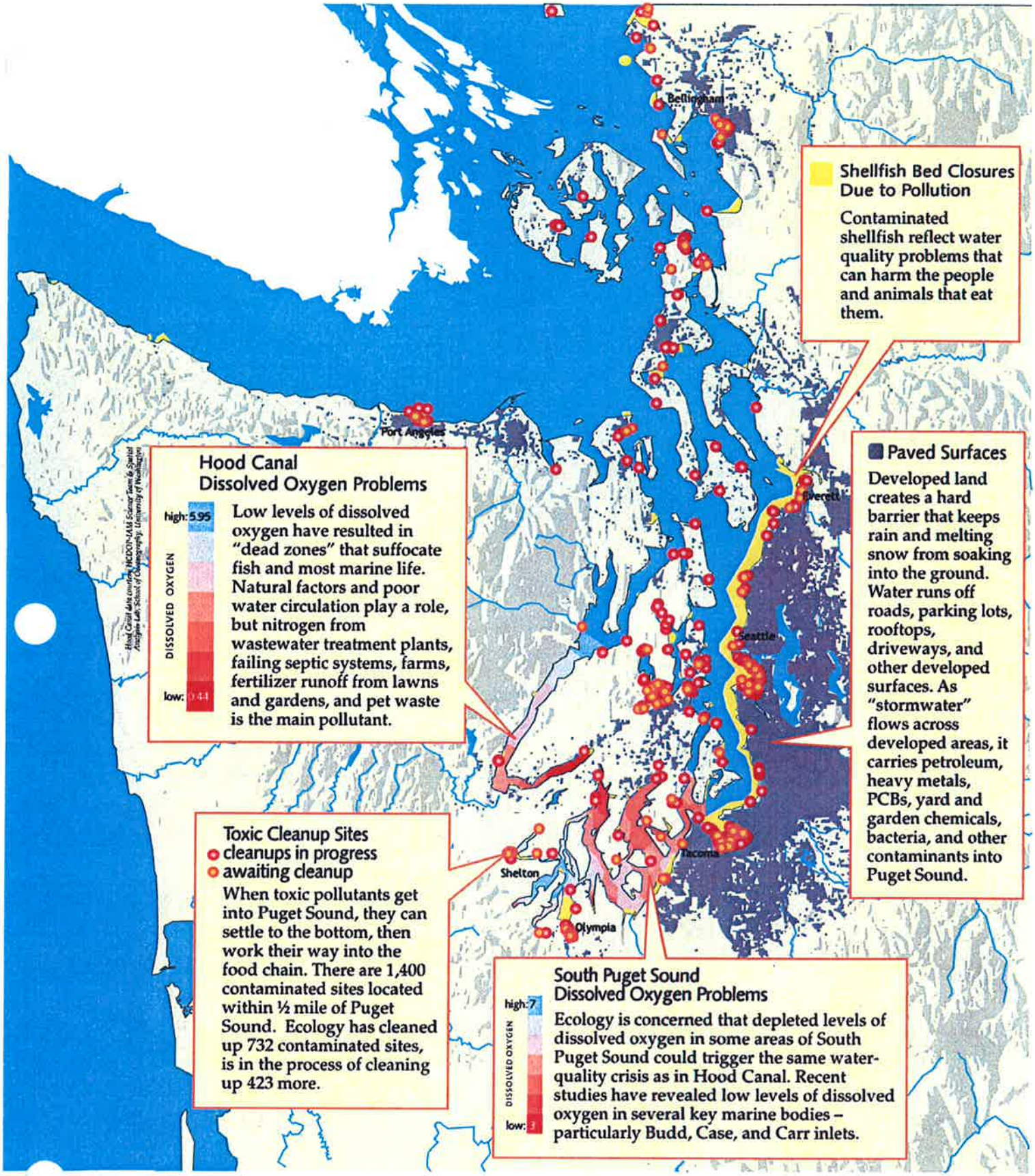
The Puget Sound region includes all the water that falls on the Olympic and Cascade Mountains and flows to meet the Sound's marine waters. It covers the land and waters in the northwest corner of Washington State – from the Canadian border to the north to the Pacific Ocean on the west, including Hood Canal and the Strait of Juan de Fuca.

Unlike Chesapeake Bay, Puget Sound includes vast stretches of deep, open waters, shallow bays and inlets, and muddy to sandy to rocky sediments underneath.

Remove the water and the bottom of the Sound looks like an underwater mountain range, made up of a series of valleys and ridges called basins and sills. These underwater formations help keep the waters in the Sound, similar to a giant bathtub with a slow moving drain: Most of what goes into the Sound stays there and circulates within the estuary.

Population

- Home to 4.4 million people — about 67% of Washington State's entire population.
- 118 incorporated cities and towns.
- 15 American Indian tribes.
- 12 bordering counties — Clallam, Island, Jefferson, King, Kitsap, Mason, Pierce, San Juan, Skagit, Snohomish, Thurston & Whatcom.
- More than 3.6 million — about 80% of Puget Sound residents — live in King, Kitsap, Pierce, and Snohomish counties alone.


Bellingham
Port Angeles
Everett
Seattle
Tacoma
Shelton
Olympia
Shellfish Bed Closures Due to Pollution
Contaminated shellfish reflect water quality problems that can harm the people and animals that eat them.
Hood Canal Dissolved Oxygen Problems
high: 5.95
DISSOLVED OXYGEN
low: 0.44
Low levels of dissolved oxygen have resulted in "dead zones" that suffocate fish and most marine life. Natural factors and poor water circulation play a role, but nitrogen from wastewater treatment plants, failing septic systems, farms, fertilizer runoff from lawns and gardens, and pet waste is the main pollutant.
Paved Surfaces
Developed land creates a hard barrier that keeps rain and melting snow from soaking into the ground. Water runs off roads, parking lots, rooftops, driveways, and other developed surfaces. As "stormwater" flows across developed areas, it carries petroleum, heavy metals, PCBs, yard and garden chemicals, bacteria, and other contaminants into Puget Sound.
Toxic Cleanup Sites
cleanups in progress
awaiting cleanup
When toxic pollutants get into Puget Sound, they can settle to the bottom, then work their way into the food chain. There are 1,400 contaminated sites located within ½ mile of Puget Sound. Ecology has cleaned up 732 contaminated sites, is in the process of cleaning up 423 more.
South Puget Sound Dissolved Oxygen Problems
high: 7
DISSOLVED OXYGEN
low: 3
Ecology is concerned that depleted levels of dissolved oxygen in some areas of South Puget Sound could trigger the same water-quality crisis as in Hood Canal. Recent studies have revealed low levels of dissolved oxygen in several key marine bodies – particularly Budd, Case, and Carr inlets.

pressures on water supplies, and water and air pollution, among others.

Since 1960, for example, the number of people living in the 12 counties bordering Puget Sound has more than doubled – from about 1.8 million to more than 4.4 million residents in 2008. In fact, 67 percent of Washington State's entire population lives in the Puget Sound region.

Washington's Office of Financial Management estimates that by 2020, 5.1 million people will live and work in the region – an increase of about 700,000 people – and the equivalent of adding about three more cities the size of Tacoma in the next decade.

There are many environmental challenges facing the region today. With another 700,000 people here in the next 10 years, what will happen to the following numbers? Today:

- **Toxic Chemicals** - Ecology currently estimates that Puget Sound receives millions of pounds of toxic chemicals every year from surface runoff, groundwater discharges, and municipal and wastewater outfall pipes. These contaminates include oil and grease, PCBs, and phthalates as well as toxic heavy metals such as copper, lead, and zinc. These toxins concentrate in urban bays and enter the food chain.
- **Polluted Stormwater** - About 75% of these toxic chemicals are carried to the Sound by the stormwater that runs off our highways, roads, driveways, roofs, parking lots, disturbed soils, and other developed surfaces.
- **Polluted Tributaries** - In 2008, there were 549 streams, rivers and lakes in the Puget Sound basin impaired by poor water quality — and in many cases, polluted stormwater runoff is a contributing factor.
- **Threatened Wildlife** - The transient and permanent populations of **orca whales** in southern Puget Sound are considered to be among the most PCB-contaminated mammals on earth. Puget Sound **harbor seals** are seven times more contaminated with these persistent toxic chemicals than those living in Canada's Strait of Georgia, which adjoins the Sound.
- **Reduced Dissolved Oxygen** - Low oxygen problems from sewage treatment plants, septic system discharges and other sources have smothered fish and marine life in parts of Hood Canal. Other areas in Puget Sound also suffer from low oxygen levels during certain times of the year.
- **Loss of Habitat** - In the past 125 years, about 70 percent of critical habitat like salt marshes, eelgrass beds and estuaries have been damaged by or completely lost to development.
- **Shoreline Development** - More 30 than percent of the Sound's 2,500 miles of shoreline are reinforced by artificial bulkheads, seawalls, and other structures. These structures can starve beaches of sediments, and juvenile salmon of food and shelter. They can also destroy shoreline vegetation, eliminating cover and food sources for young salmon.

Delivering Results

The Department of Ecology and its state partners have been working diligently on a range of actions aimed at helping restore, protect, and preserve Puget Sound by 2020. These partners include:

Click to enlarge

- Puget Sound Partnership
- Washington State Parks and Recreation Commission
- Washington Department of Natural Resources
- Washington State Recreation and Conservation Office
- Washington Department of Fish & Wildlife
- Washington State Department of Health

Ecology is responsible for improving water quality by preventing and cleaning up water pollution. The department also provides technical, financial, and educational assistance to local communities and partner agencies.

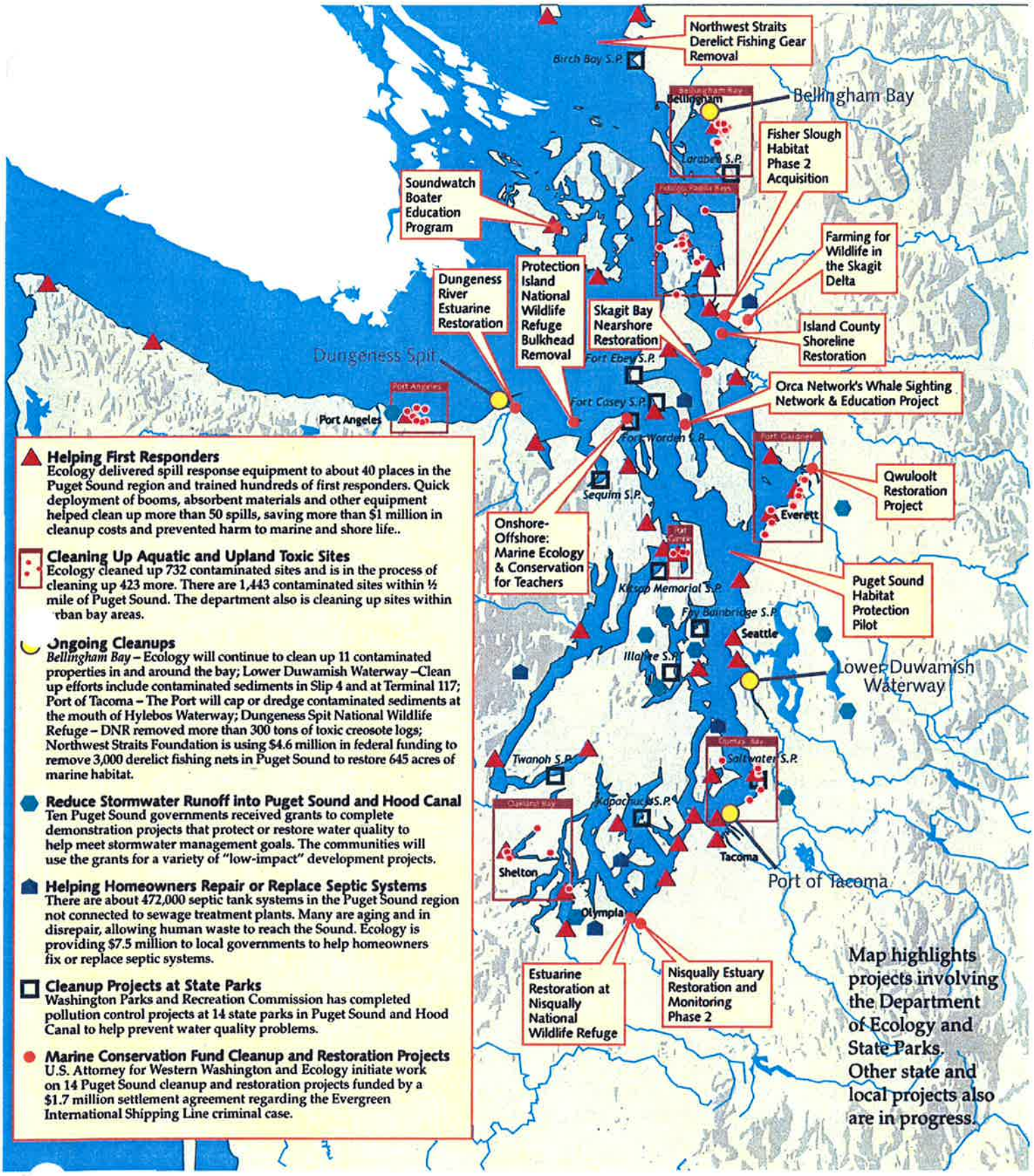
The agency works to reduce toxic threats by preventing and cleaning up toxic soil, sediment, and water contamination under the voter-approved Model Toxic Control Act.

Ecology also is responsible for preventing, preparing for, and responding to oil spills and other emergency incidents that pose immediate and long-term threats to public health and the environment.

Other critical work includes protecting Puget Sound's 2,500 square miles of marine and freshwater shorelines through the state Shoreline Management Act. Ecology works closely with local communities to update and enforce comprehensive shoreline regulations.

The department also works with Indian tribes, communities, conservation groups, and local governments to protect key habitat such as wetlands and marine estuaries, including acquiring and preserving land parcels.

Ecology protects the region's water supplies by overseeing water rights, assisting with watershed planning, and helping make sure sufficient water flows for people, farms, and fish in the 19 river basins that drain to Puget Sound.



Helping First Responders
Ecology delivered spill response equipment to about 40 places in the Puget Sound region and trained hundreds of first responders. Quick deployment of booms, absorbent materials and other equipment helped clean up more than 50 spills, saving more than $1 million in cleanup costs and prevented harm to marine and shore life..

Cleaning Up Aquatic and Upland Toxic Sites
Ecology cleaned up 732 contaminated sites and is in the process of cleaning up 423 more. There are 1,443 contaminated sites within ½ mile of Puget Sound. The department also is cleaning up sites within urban bay areas.

Ongoing Cleanups
Bellingham Bay – Ecology will continue to clean up 11 contaminated properties in and around the bay; Lower Duwamish Waterway –Clean up efforts include contaminated sediments in Slip 4 and at Terminal 117; Port of Tacoma – The Port will cap or dredge contaminated sediments at the mouth of Hylebos Waterway; Dungeness Spit National Wildlife Refuge – DNR removed more than 300 tons of toxic creosote logs; Northwest Straits Foundation is using $4.6 million in federal funding to remove 3,000 derelict fishing nets in Puget Sound to restore 645 acres of marine habitat.

Reduce Stormwater Runoff into Puget Sound and Hood Canal
Ten Puget Sound governments received grants to complete demonstration projects that protect or restore water quality to help meet stormwater management goals. The communities will use the grants for a variety of "low-impact" development projects.

Helping Homeowners Repair or Replace Septic Systems
There are about 472,000 septic tank systems in the Puget Sound region not connected to sewage treatment plants. Many are aging and in disrepair, allowing human waste to reach the Sound. Ecology is providing $7.5 million to local governments to help homeowners fix or replace septic systems.

Cleanup Projects at State Parks
Washington Parks and Recreation Commission has completed pollution control projects at 14 state parks in Puget Sound and Hood Canal to help prevent water quality problems.

Marine Conservation Fund Cleanup and Restoration Projects
U.S. Attorney for Western Washington and Ecology initiate work on 14 Puget Sound cleanup and restoration projects funded by a $1.7 million settlement agreement regarding the Evergreen International Shipping Line criminal case.

- Ecology is conducting a water quality study on low dissolved oxygen levels in south Puget Sound .This study will help determine how human activities, along with natural factors, affect low dissolved oxygen levels in South Puget Sound.

- Ecology has launched a new Clean, Green Boating Web site to make it easier for boaters to learn how to protect state waters, including Puget Sound. The site gives tips on how to prevent oil spills, properly dispose of sewage, and environmentally safe ways to clean and paint their boats.

- On Earth Day 2009, Ecology urges everyone residing in Puget Sound to help stop stormwater and polluted runoff – the state's biggest urban water quality threat. Polluted runoff carries an estimated 52 millions of pounds of toxic contaminants into Puget Sound every year. Ecology is actively cleaning up many near-shore areas that have high levels of toxic chemicals in sediments.

- The Department of Ecology approves a $970,000 grant to the Stormwater Outreach for Regional Municipalities (STORM), a consortium of five Puget Sound counties and many of their municipalities, to develop and implement a regional media campaign targeting behavior change around a group of best management practices related to yard care, pet care, car care, and home care. (*See Puget Sound Starts Here*)

- On April 21, 2009, the PBS Frontline documentary "Poisoned Waters" put a national spotlight on Puget Sound's health problems, highlighting stormwater as the number one threat facing Puget Sound and other waterways around the country.

- Ecology develops a new computer prediction tool that analyzes how toxic chemicals move through Puget Sound's water, sediment, and marine life. The tool will boost the state's understanding of how stormwater pollution affects the environmental health Puget Sound.

- Stormwater management has improved with 81 communities coming under stronger stormwater management requirements and 19 cities and counties adopting regulations that facilitate low-impact development.

- **$21 million has been invested in on-the-ground actions** to reduce nutrient pollution and fish kills in Hood Canal through a multi-agency coordinated response.

- All 12 Puget Sound counties put in place more rigorous management programs for septic systems.

Much more has been accomplished, more is in progress.

- By July 2009, **Ecology completes cleanup of 732 contaminated sites** and is in the process of cleaning up 423 more. There are total of 1,443 contaminated sites within ½ mile of Puget Sound.
- Ecology publishes two new Puget Sound reports in November 2008: Pollutant Loading Estimates for Surface Runoff and Roadways and Improved Estimates of Loadings from Dischargers of Municipal and Industrial Wastewater. The reports confirm previous findings that surface runoff is the main pathway for toxic chemicals getting into Puget Sound and that primary sources of toxic chemicals are the everyday activities of people.
- Ecology launches the Urban Waters Initiative that focuses on the special environmental challenges faced by the Lower Duwamish Waterway in King County and Commencement Bay in Pierce County. The aim is to prevent contamination or re-contamination of these waterways.
- Ecology delivers mobile oil spill response equipment to local first responders at nearly 40 critical locations around Puget Sound, Hood Canal and the Strait of Juan de Fuca. This has already saved more than $1 million in cleanup costs and environmental harm to marine and shore life.
- Washington Department of Natural Resources removes abandoned and derelict vessels from Puget Sound for removal to appropriate disposal. Derelict and abandoned vessels are hazardous to boaters, and pollution and garbage pose threats to Puget Sound's aquatic ecosystem and the plants and wildlife that depend on it — as well as people who eat fish and shellfish from our waters.
- Ecology certifies 13 oil spill readiness plans for refining, oil handling and vessel shipping companies operating in Western Washington. All but one is located in Puget Sound. The approved oil spill contingency plans help ensure the companies handling and transporting billions of gallons of oil in and out of the Sound are prepared to quickly and aggressively respond to any spill they might cause . Companies will have to regularly test and continually improve their spill readiness plans.
- **1,200 acres of commercial shellfish harvest areas** were upgraded by the Washington Department of Health as a result of new pollution controls.
- Department of Natural Resources has **removed more than 800 tons of creosote-coated logs** from state aquatic lands since 2006.

Much more has been accomplished, more is in progress.

- Ecology provides $2 million to nine Puget Sound watershed management groups to protect and restore the health of the watersheds. The funding also will help pay for projects to improve how local water supplies will be managed for future economic growth and environmental quality.
- In February 2009. Ecology invests $3.1 million in federal grants for wetland preservation projects. These projects help local partners return more than 350 acres of critical and increasingly rare estuarine and connected fresh water wetland habitat in Mason, Pierce, Thurston, and Whatcom counties to natural conditions.
- Ecology uses $1.47 million in federal grants for wetland preservation projects. These projects help local partners return nearly 500 acres of critical and increasingly rare coastal wetland habitat in Jefferson and Whatcom counties back to their natural conditions. These near-shore estuary areas provide vital nurseries for salmon and other marine life.
- The Nisqually Indian Tribe held a "Welcoming the Tides" ceremony commemorating the **restoration of 100 acres of prime Puget Sound estuary** and setting the stage for an even more ambitious project that will restore more than 700 acres of Nisqually estuary.

Much more has been accomplished, more is in progress.

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